Joint Battle Management Command and Control (JBMC2) System Engineering

Value Added through the Systems Engineering Oversight

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Director
C4 Systems
USJFCOM J6

Version 1.2
17 Oct 2003 0900

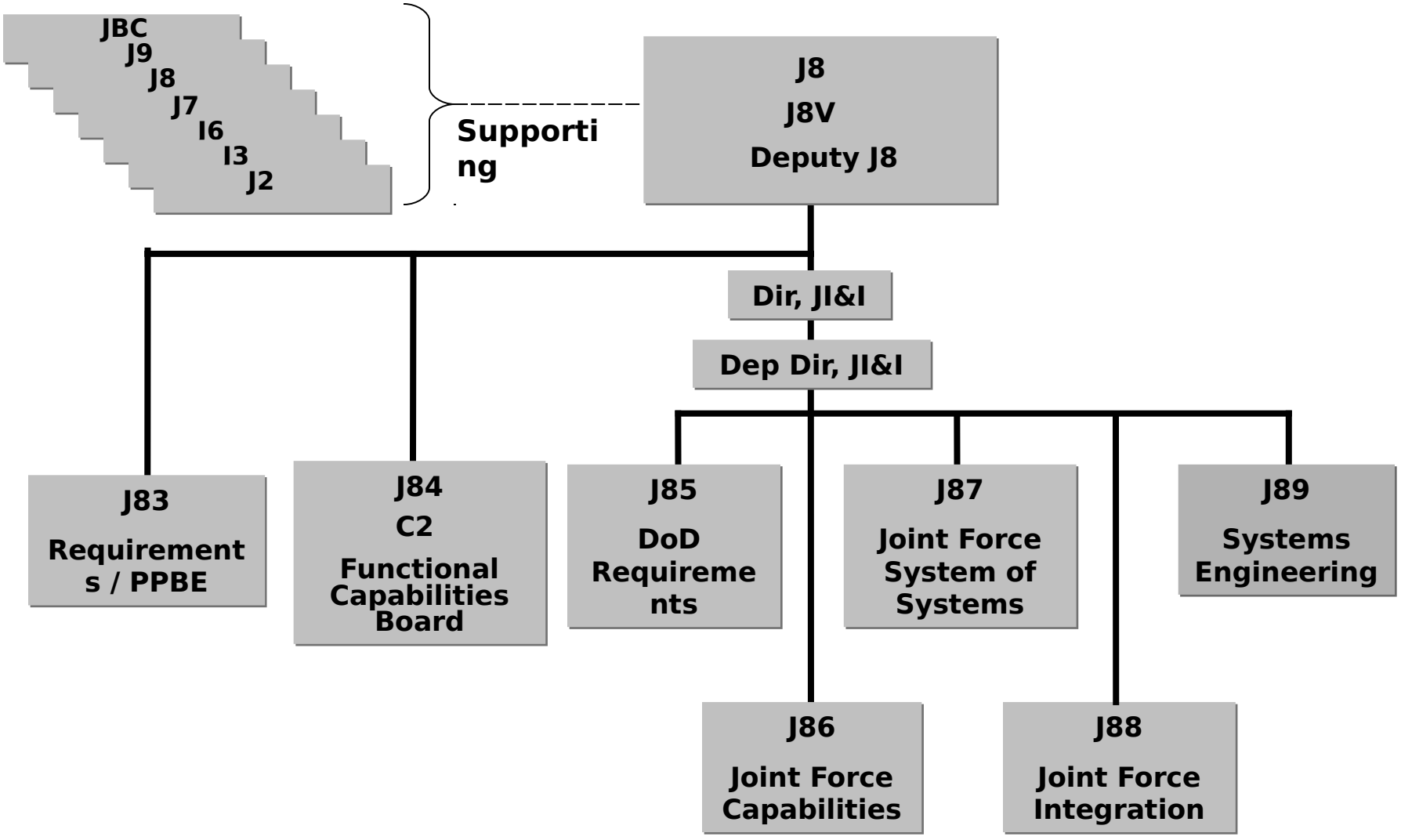
USJFCOM's Task

Joint Forces Command is leading the Department of Defense in a major transformation of our military capability in response to new world threats. The responsibility of affecting this transformation can only be realized if our defense systems, including command and control, space based, and information systems can achieve and maintain interoperability and integration to satisfy mission capability requirements.

MANAGEMENT INITIATIVE DECISION 912 (MID 912)

- Expanded the JFCOM's responsibilities for JBMC2 Mission/Capability requirements
- Identifying system of system capability requirements
- Lead development of joint doctrine, concepts, requirements, and integrated architectures for JBMC2
- Oversight authority for service acquisition of JBMC2 systems

JBMC2 ORGANIZATION



Joint Systems Engineering Oversight

What is Wrong:

- Services and Defense Agencies control system acquisition resources and requirements
- Costs to meet individual service needs vs. providing joint capabilities
- Services are not structured to facilitate organizing, training,and equipping a **joint** capable force
- No forcing function to achieve C2 interoperability and integration across all services

Joint Systems Engineering Oversight

<u>What is wrong</u>:

Cont.

- No single authority for command and control in DoD
- Requirements and acquisition processes are almost solely within service controls
- All aspects of DOTMLPF are required for joint and coalition operations
- Interoperable & integrated systems are not born joint

Joint Systems Engineering Oversight

What is needed:

- Joint Integrated Architecture views “as is” and
  future objective views
- Risk reduction via architecture assessment
- Joint oversight of programs
- COCOM voice – near term fixes
- Net-centricity / Common services

What JFCOM is doing

J89 Systems Engineering Division tasked to:

- Oversee engineering development of near term material solutions of COCOM issues
- Provide Engineering oversight of JBMC2 (SIAP, FIOP, and DJC2) programs
- Chair / Co-chair six DoD integrated architecture working groups designed to provide DoD with a JBMC2 Integrated Architecture
  - JBMC2 System Engineering Advisory Group (JSEAG)
  - Engineering Environment Working Group (EEWG)
  - Cross Service Architecture Working Group (CSAWG)
  - Capabilities Architecture Working Group (CAIWG)
  - COCOM Architecture Working Group (CCAWG)
  - Integrated Architecture Steering Group (IASG)

What JFCOM is doing

J89 Systems Engineering Division tasked to: Cont.

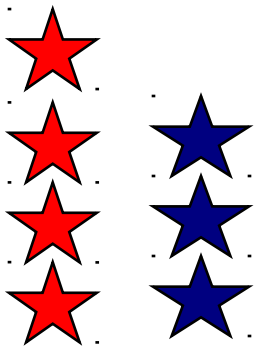
- Coordinate the development of a federated data repository with Services / Agencies / COCOMs / ASD(NII) / AT&L
- Verify and validate Service system development meets joint requirements

Closing Comments

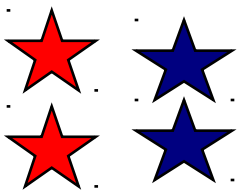
- Community approach is coming together.
- JBMC2 Integrated Architecture must support senior leadership decision making.
- Finding, integrating, structuring all relevant architecture work is a challenge.
- Federated repository is an absolute requirement – requires a degree of commonality.
- Many good individual service and program efforts recognize the need to be interoperable, integrated and be joint. Services actively participating in the JBMC2 Integrated Architecture Working Groups.

Back-up

MID 912 Supports Department of Defense Priorities



- Successfully Pursue the Global War on Terrorism
- Strengthen Joint Warfighting Capabilities
- Transform the Joint Force
- Optimize Intelligence Capabilities
- Counter the Proliferation of WMD
- Improve Force Manning
- New Concepts of Global Engagement
- Homeland Security
- Streamline DoD Processes
- Reorganize Dod and the USG to Deal with Pre-War Opportunities and Post-War Responsibilities

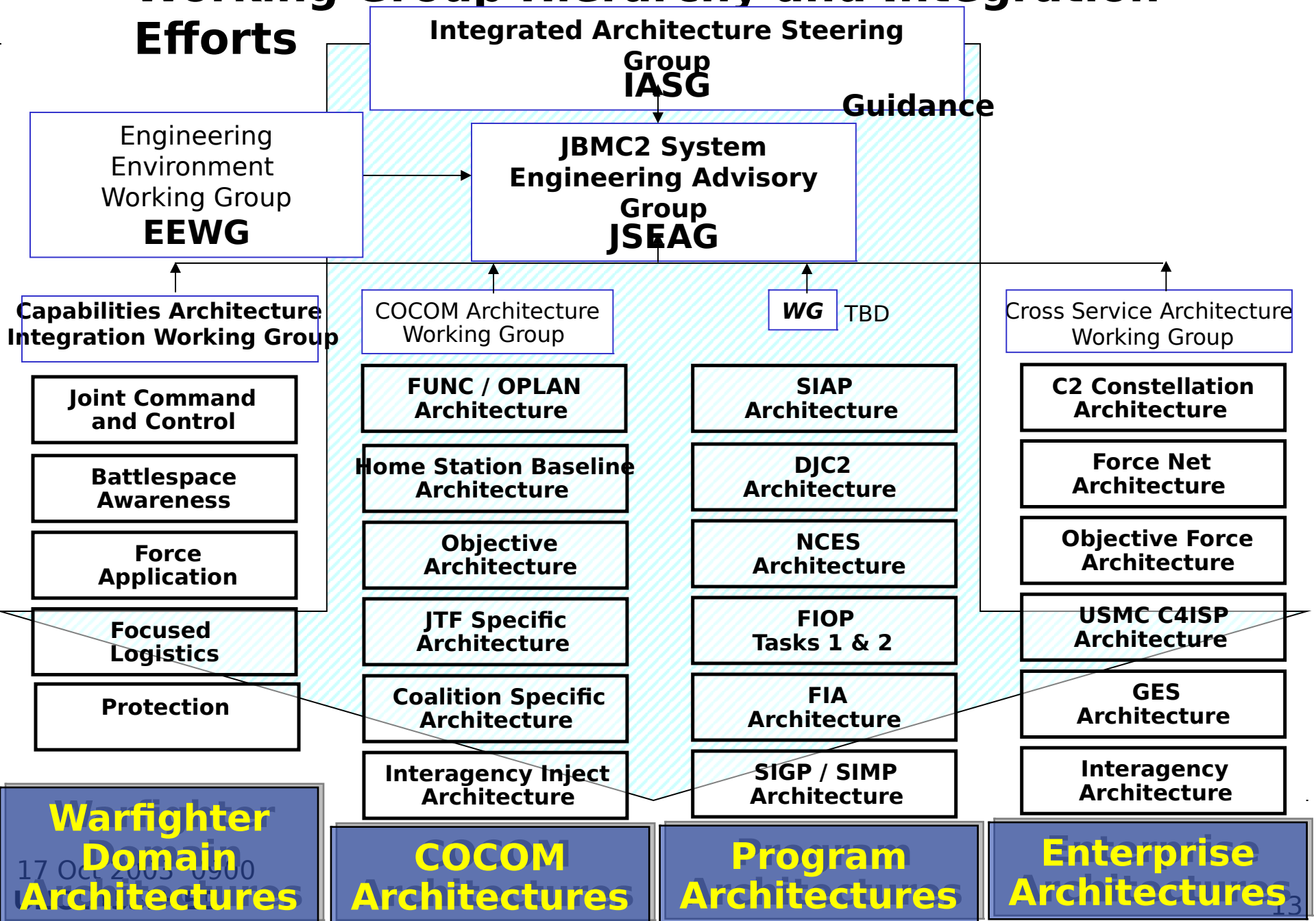


= JFCOM focus

= MID912 focus

Transformation is a top U.S. defense priority

Working Group Hierarchy and Integration Efforts



Architecture Working Groups

1. **JBMC2 System Engineering Advisory Group – *IN PLACE***
   - Established and Working
   - Terms of Reference staffed
   - JBMC2 AV1 drafted
   - Representatives from Services, ASD(NII), DISA, FIOP SEWG

2. **Cross Service Architecture Working Group – *IN PLACE***
   - Established – informal
   - Plan for JFCOM to chair/lead with support from Services, SPAWAR initially
   - Terms of Reference drafted

3. **Integrated Architecture Steering Group – *IN DEVELOPMENT***
   - In support of the BOD
   - Provide Integrated Architecture Guidance
   - Resolve Issues
   - Organizations Identified
   - Representatives need to be identified
   - Terms of Reference drafted

Architecture Working Groups

4. Engineering Environment Working Group – *IN DEVELOPMEN*
- Propose to co-chair with ASD(NII)
- Terms of Reference drafted
- Address Architecture Federated Repository issues

5. Capabilities Architecture Integration) Working Group – *PROPOSED*
- Integrate the FCBs
- Propose to co-chair with JS J8
- Address mission area integration

6. COCOM Working Group – *PROPOSED*
- Propose to co-chair with ASD(NII)
- Represented by CISA Govt. Program Officers from COCOMS
- Address COCOM Architecture issues

Joint Systems Engineering Division J89

TASKS

⇨ **Oversee engineering development of materiel solutions proposed to meet near-term Combatant Command issues**

⇨**Develop and maintain integrated architectures (include applicable standards)**

- Direct / coordinate / synchronize JBMC2 Combatant Commands, Service, Agency system engineering efforts thru lifecycle
- Verify and validate that products meet joint requirements
- Leverage Combatant Command operations / exercises / experiments to help solve problems and integrate long-term efforts

SUB TASKS

Director Group **J89**

Leadership & Coordination

NH-19

2/1

Architecture Integration Branch **J891**

- SAGG
- SEAG
- EEWG
- Enterprise C2 WG
- COCOM WG
- JCS Capability WG
- Program / Initiative WG

NH-19

3/4

- JBMC2 Roadmap
- Transformation Roadmap

COCOM Capability Eng Branch **J893**

- COCOM issues
- TCP 1.0 Requirement/RFI
- Id Development
- Outline
- Provide Guidance
- TCP 2.0 Pre-Proposal
- Eval & Receive spt
- TCP 3.0 Proposal
- Oversight Develop
- Assess Product
- IPRs
- Recommend fielding

JTASC

7/0

Architecture Analysis Branch **J892**

- Assessment Capabilities
- Analysis (JMACA Methodology)
- Model & Simulation
- Architecture Development
- CCR Process

Bridgeway

5/6

Program Eng Oversight Branch **J894**

- CONOPS
- Arch Products
- Eng Approach
- Ensure consistency
- Spiral Dev
- w/Enterprise Arch,
- etc.
- Capability Docs., TA,
- COCOM Involvement
- Ops Concepts
- Programmatic (milestones / $ / increments

NH-19

7/1

Architecture Engineering Support Branch **J895**

- Federated Repositories
- JCARS Repositories
- Architecture Tools
- Architecture Development
- Architecture Analysis

NH-19

3/16

Table of Organization			
27 GS + 28 CTR = 55			
GS-15	GS-14	GS-13	CTR
7	14	6	28

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GS-15	GS-14	GS-13	CTR
7	14	6	28

(2/1) System Engineering Division – NH-19

J89 - Division Head (GS15/IPA) – John Mitchell

J89A - Deputy (GS14/15) – Ken Williams

J89B - Admin (CTR) – Diane Kusha

(3/16) Architecture Engineering Support –NH-19

*J895 - Arch Eng Support Chief (GS15) –Frank Kerekes, ACTNG

J895A -Arch Eng Support Deputy (GS14) – Frank Kerekes

*J895B - Arch Engineer (GS14) - Vacant

J895C -System Analysis (CTR) – Maragrette Zettervall

J895D - JCARS Concept Mgr (CTR) – Pete Kuccra

J895E - JCARS Concept Analysis (CTR) – Mark Clark

J895F - JCARS Analyst (CTR) – James Dickie

J895G - JCARS Analyst (CTR) – Ray Snyder

J895H - JCARS Analyst (CTR) – Gary Chiaverotti

J895J - JCARS Analyst (CTR) – Vacant

J895K -Project Development (CTR) – Berry Hertsgard (No cost)

J895L - System Eng/Admini (CTR) – Richard Wendland

J895M - Application Tech (CTR) – Mike Ryan (Part time)

J895N -Information Tech (CTR) – Kerry Owens (Part time)

J895P-Information Tech (CTR) – Phill Kanagey (Part time)

J895Q- System Engineer (CTR) – Dave Trumpoldt

J895R -Database Administrator (CTR) – Mary Minter

J895S -Information Tech (CTR) – Matt Allen (Part time)

J895T -Information Tech (CTR) – Mike Sailer (Part time)

(3/6) Architecture Integration Branch – NH-19

J891 - *Arch Integration Chief (GS15) – Kim Frisby, ACTNG

J891A - Arch Integration Deputy (GS14) - Kim Frisby

J891B - Architect Engineer (GS-13) - Jeff Springer

J891C - DSC LNO (S3 CTR) - Tim Major

J891D - Architect (CTR-ACS Def) – (1st Qtr 04)

J891E - Architect (CTR-ACS Def) - (1st Qtr 04)

J891F - Architect (CTR-BAH) – (1st Qtr 04)

(4/7) Architecture Analysis Branch - Bridgeway

J892 - Arch Analysis Chief (GS15) – Mike McBeth

J892A - Arch Analysis Deputy (GS13) -Dan Seals

J892B - JMACA Transition Chief (GS14) - (1s Qtr 04)

J892C -JMACA Data Mining Deputy (CTR) (1stQtr 04)

J892D -JMACA Chief Analyst (CTR) - (1st Qtr 05)

J892E -JMACA Analyst (CTR) - (1st Qtr 05)

J892F -JMACA Data Mining Chief (GS14) -(1st Qtr 06)

J892G -JMACA Analyst (CTR) - (1st Qtr 06)

J892H -JMACA Analyst (CTR) - (1st Qtr 06)

J892J -JMACA Analyst (CTR) - (1st Qtr 06)

J892K -JMACA Analyst (CTR) - (1st Qtr 06)

CIPO Support

(7/0) COCOM Capability Eng Branch - JTASC

J893 Engineering Branch Chief (GS15) –Ron Ballard

J893A - Deputy Eng Br (GS14) - Joel Heaton

*J893B - Systems Engineer (GS14) - Vacant

•J893C -US Navy Engineer LNO (GS 14) - (1stQtr 04)

(SPAWAR CIPO Engineer)

•J893D -USMC Engineer LNO (GS 14) - (1stQtr 04)

(SPAWAR CIPO Engineer)

J893E -US Army Engineer LNO (GS 14) - (1st Qtr

(7/1) Program Engineering Oversight Branch – NH-19

*J894 - SE Oversight Branch Chief (GS15) – John Mitchell, ACTNG

J894A -SE Oversight Deputy (GS14) – - Ernest Granger

J711SA - Senior Systems Engineer (CTR) – Tom Fitzgerald (Split Time)

J894B - DISA (JITC) LNO (GS14) – (1st QTR 04)

•J894C - US Navy Engineer LNO (GS 13) - (1st Qtr 04) (SPAWAR CIPO Engineer)

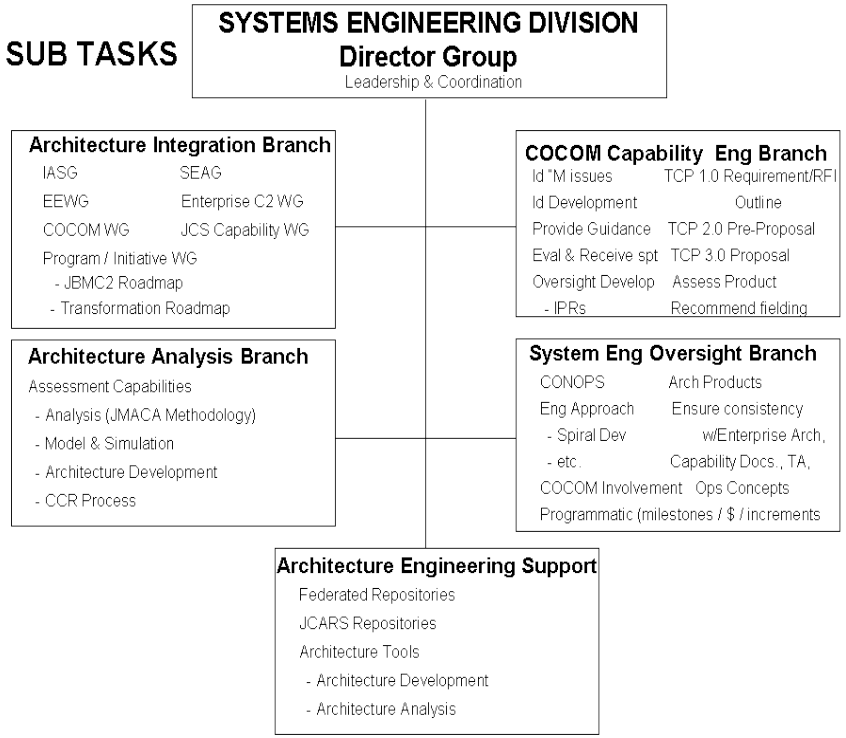
•J894D - USMC Engineer LNO (GS 13) - (1st Qtr 04) (SPAWAR CIPO Engineer)

J894E - US Army Engineer LNO (GS 13) - (1st Qtr 04)

* - 5 New JFCOM Billets

• 4 SPAWAR CIPO Authorized to be on site in FY04

How to accomplish the job?



TASK 1 COCOM Issues

1. Identify capability developers and match to issues
a. Information Portal –
   i. link to issues and POCs
   ii. developers identify issues they will work
   iii. facilitate coordination among those working same issues
2. Get proposals and evaluate
a. Identify what proposals should contain – communicate to developers
b. Establish a system engineering working group of developers
c. Proposal should be presented during WG meeting
d. Need mechanism to get consensus evaluation and ranking
2. Conduct periodic IPRs during development
a. Evaluate if on schedule and within budge of proposal
b. Continue effort or cancel and recoup funds

TASK 2 Integrated Architectures **UNCLASSIFIED**

1 Establish integrating WGs (3-4) for vertical integration
a Who chairs
- Who participates
- What is the product – continuous process but need intermediate products

b. Establish overarching integrating WG (horizontal)
- Chairs of vertical WGs are members
- Who chairs?
- Intermediate products?

c. Tools and Repository
   i. Capture persistent data (How? What? Where from?)
   ii. Access relevant DBs (from all WGs?, Where else?
   iii. Identify required analysis tools.
   iv. Identify requirements and operational concepts tools.
   v. Identify architecture and engineering tools (visualization, etc.)
   vi. Implementation and system admin
   vii. Coordination with engineering community

d. Focus on SJFHQ
   i. Ops Concept
   ii. Operational Architecture
   iii. SJFHQ=P
   iv. DJC2 CONOPS
   v. DJC2 ORD
   vi. DJC2 System Architecture
   vii. JCSE as Comm provider
   viii. DJC2 Programmatics
   ix. How it all fits in a COCOM architecture- Relationship to representative JTF Ops Architecture

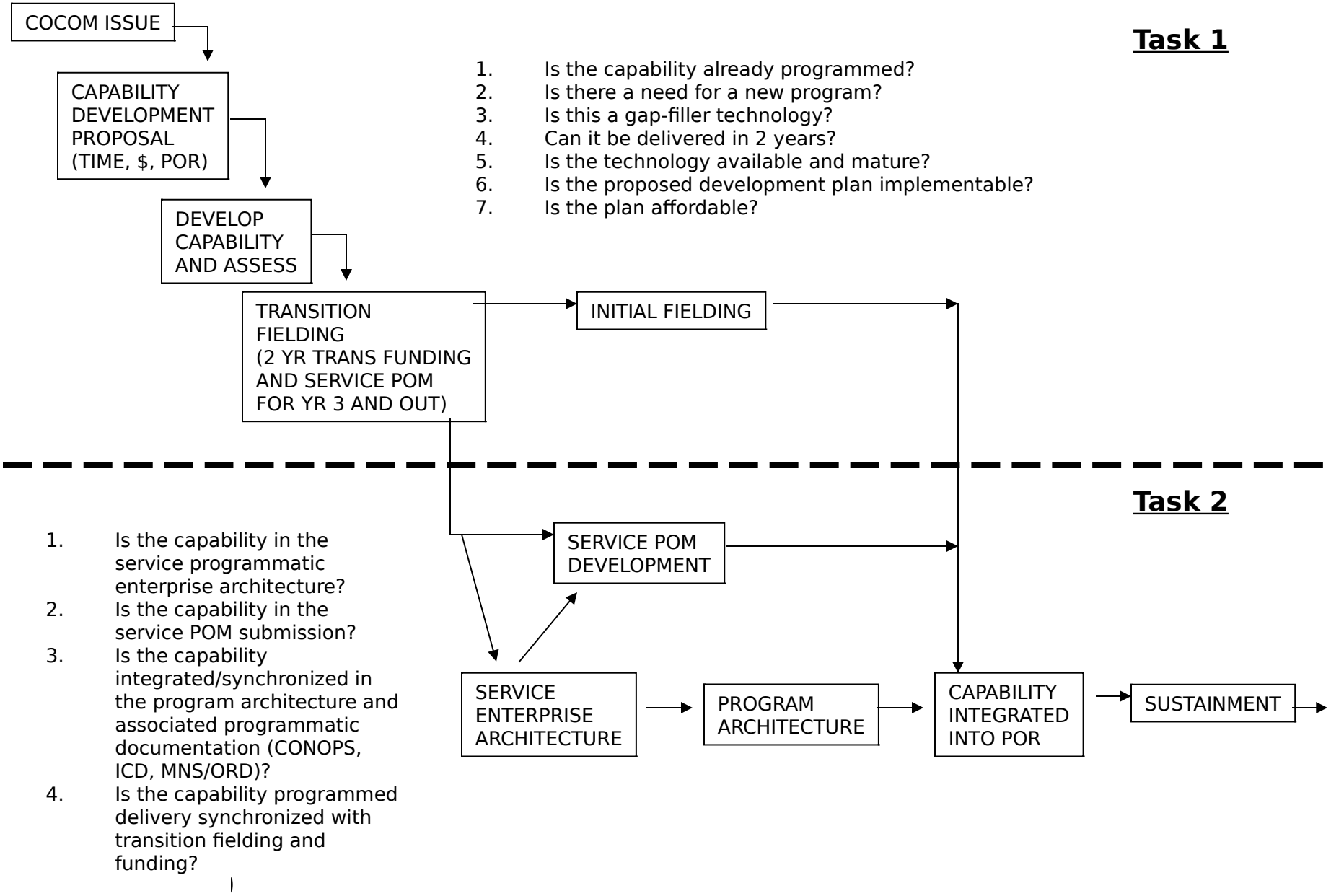
e. Analysis
- M&S/Analytical/Gap and Overlap

f. SOCOM
- JSTOF vs JTF Standard model
- Acquisition Process

Admin/Organizational
- Hiring actions, JMACA, J87, J88, MCAT, GCCTM support to J86

1. Participate in 24 separate architecture efforts, 4 integration WG and overarching WG
2. Participate/coordinate with SIAP Architecture Efforts
3. Participate/coordinate with FIOP Architecture Efforts, e.g. BFT
4. Participate/Coordinate with all picture efforts – SIGP, SIMP, SISP
5. Participate/coordinate with JCAS Architecture Efforts
6. Participate/coordinate with PE/TST Architecture Efforts

RELATIONSHIP OF TASK 2 EFFORTS IN SUPPORT OF TASK


COCOM ISSUE
CAPABILITY DEVELOPMENT PROPOSAL (TIME, $, POR)
DEVELOP CAPABILITY AND ASSESS
TRANSITION FIELDING (2 YR TRANS FUNDING AND SERVICE POM FOR YR 3 AND OUT)
INITIAL FIELDING
Task 1
1. Is the capability already programmed?
2. Is there a need for a new program?
3. Is this a gap-filler technology?
4. Can it be delivered in 2 years?
5. Is the technology available and mature?
6. Is the proposed development plan implementable?
7. Is the plan affordable?
Task 2
1. Is the capability in the service programmatic enterprise architecture?
2. Is the capability in the service POM submission?
3. Is the capability integrated/synchronized in the program architecture and associated programmatic documentation (CONOPS, ICD, MNS/ORD)?
4. Is the capability programmed delivery synchronized with transition fielding and funding?
SERVICE POM DEVELOPMENT
SERVICE ENTERPRISE ARCHITECTURE
PROGRAM ARCHITECTURE
CAPABILITY INTEGRATED INTO POR
SUSTAINMENT

RELATIONSHIP OF TASK 2 EFFORTS IN SUPPORT OF ANALYSIS EFFO

Task 2

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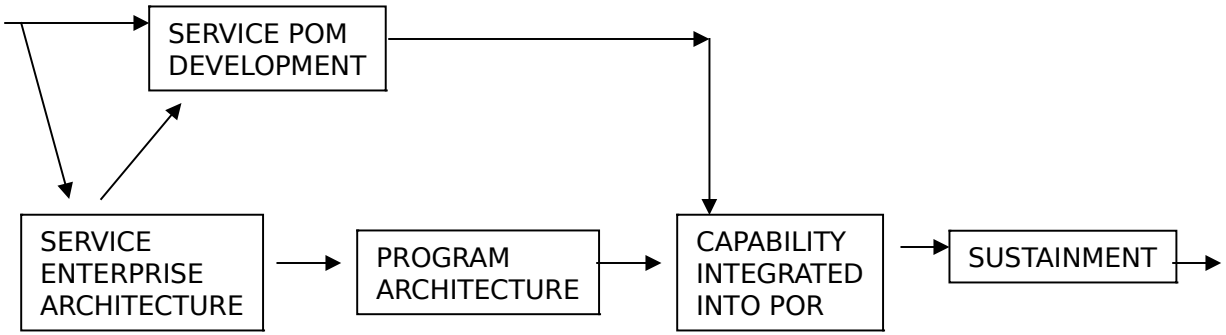


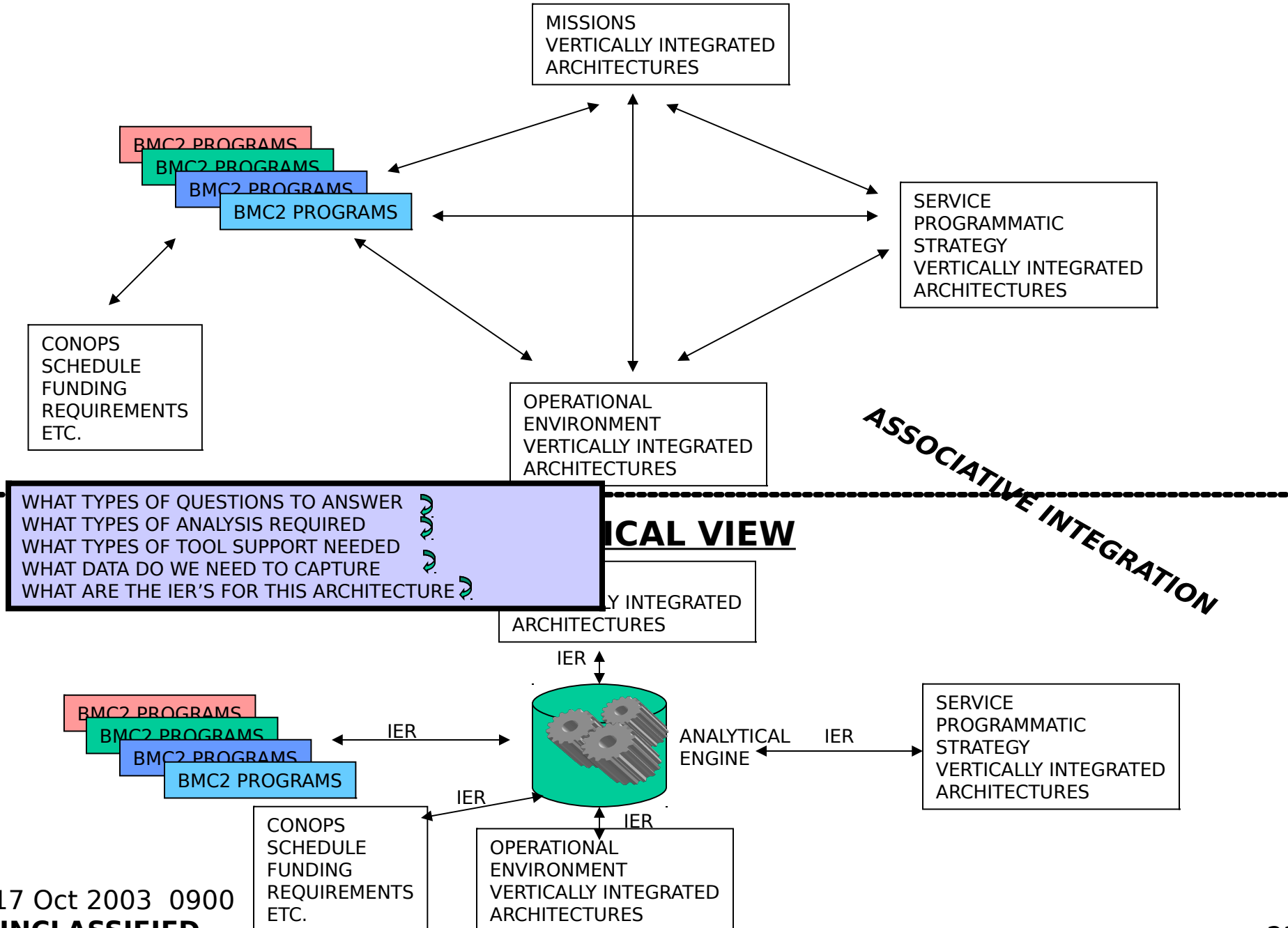
WHAT KINDS OF ANALYSIS ARE REQUIRED?

Vertical Integrations of:
1. Service/Agency Enterprise C2 and C4ISR Architectures
2. Warfighter Domain Areas
3. COCOM Operational Environments

INTEGRATION = Association, Relationships, Continuity, Connectivity

- Horizontal Integration of the 3 architectures above.
- Integration of each of the JBMC2 Program architectures with the horizontally Integrated Architec
- Integration of Ops Concepts, Requirements (ORD/ICD), Programmatics with Program Architecture

LOGICAL RELATIONSHIPS



JBMC2 Integrated Architecture Basics

JBMC2 Integrated Architecture efforts are to be:

1. Reflective of the GES
2. Traceable to UJTLs and Joint Tactical Tasks (JTTs)
3. Focus on the Operational Level of War
4. Mapped to identified Commander C2 priorities
5. Incorporates insertion of the Standing Joint Force Headquarters (SJFHQ), Deployed Joint Command and Control (DJC2), Joint Command and Control, Joint Fires, Collaborative Information Environment, etc., initiatives.
6. Support development of a single relevant operational picture for use by a commander (SIAP, FIOP, SIGP, FnMP, SISP, SISOFP)
7. Map to authorized COCOM FUNC / OPLANS

CONCERNS / ISSUES

1. Current IA activities oriented on PROCESS as opposed to PRODUCTS
   a. Identify Department Architecture Efforts
   b. Organize/Structure the Architecture Community and Efforts
   c. Provide Architecture Guidance and Focus
   d. Support to the JBMC2 Roadmap effort which is focused on Systems. System focus should be a fallout of the Integrated Architecture efforts.
   e. Support to the C2 FCB efforts

2. Next steps will be to identify products and milestones
   a. Example: System Engineering Advisory Working Group producing high level JBMC2 Integrated Architecture Products (AV-1 drafted); Cross Service Architecture Working Group to produce Integrated C2 Enterprise Architecture; etc. Result will be an integrated investment strategy.
   b. Product identification and milestones follow process – may take up to a year to fully implement.